

**WESTERN NAVAJO PLATEAU AML RECLAMATION
PROJECT**

CLOSEOUT REPORT

NAVAJO NATION
DIVISION OF NATURAL RESOURCES
NAVAJO ABANDONED MINE LANDS RECLAMATION PROGRAM
TUBA CITY FIELD OFFICE
TUBA CITY , ARIZONA

Prepared by:

*Lorenzo Begay
Principal Engineering Technician / Project Manager
Guy Horsen
Senior Environmental Technician*



WESTERN NAVAJO PLATEAU AML RECLAMATION PROJECT

Contract No. : C22342

Award Amount: \$415,722.00 (Modified)

\$408,000.00 (Original)

Term of Contract : September 30, 2002 to January 31,2003 (Modified)

September 30,2002 to January 27,2003 (Original)

Duration of Contract: 124 Calendar Days (Modified)

120 Calendar Days (Original)

Notice to Proceed Issued: September 30,2002

Pre-Construction Meeting: September 12,2002

Principal Contractor: Silver State Construction Company,Inc.

P.O. Box # 3000

Shiprock , New Mexico 87420

The Western Navajo Plateau AML Reclamation Project consisted of a total of **20** sites located in the Cameron, Coalmine Mesa, Gap/Bodaway and Coppermine, Arizona , on the Navajo Nation. NA-0257 was not done per agreement by both parties.

Initial reclamation work activities started with mobilization to project sites in the Cameron, Arizona area on October 01,2002. Earthwork was started on October 01,2002 with Class A stockpiling at the designated borrow site.

Silver State Construction Company (SSCC) obtained clearances to haul water from an earthen dam in vicinity of site NA-0175 approximately 12.3 miles southeast of Cameron, Arizona and on the east side of the Little Colorado River.

Earthwork completed was as follows; classified excavation of mine waste to backfill one (1) abandoned portal with specified backfilling sequence. Work was done on all reclaimed surfaces to conform with specified contours, erosion potential minimized, rough grading / scarifying of surfaces, outlying drainages diverted, positive drainages off reclaimed areas ensured with long-term erosion minimized.

Additional earthwork completed was as follows; excavation of burial/borrow areas , stabilization and backfill work on a series of subsidence areas, repair a stock dam and stockpiling /transporting Class A material.

Other reclamation work included a polyurethane foam (PUF) closure on an open portal, dismantling/burial of concrete structures and bulkhead closure at one site.

CHANGE ORDER NO.1 was for additional negotiated work at site NA-0164 for an extra 1,500 cu. yds. of Class A cover material. The extra material was necessary for final cover of mine waste , pursuant to NN AML Reclamation radiological cleanup standards.

The contractor requested for an additional four (4) calendar days time extension to complete CHANGE ORDER NO. 01's scope of work.

For completion of the above additional work ,this time extension was justified. work at NA-0164 and additional specified work was completed at final stages of this project.

Post radiological surveys were completed, with passing results with all recorded readings under the Navajo Nation AML Health Physics guidelines for radiometric cleanup levels of 25 pCi/gm of residual RA-226 concentration in the first 6 inches of reclaimed surfaces.

At peak workforce capacity, a total of (12) twelve contract personnel and (10) ten equipment were utilized at different sites depending upon contractor's workload. The following equipment were used; (1) D6MX DOZER, (1) 966G LOADER,(1) 320 CL TRACKHOE, (1) 4,000 GAL. WATER TRUCK, (2) 500 GAL. WATER TRUCKS, (1)140H MOTOR GRADER, (1) 563 SHEEPSFOOT ROLLER, and (2) 12 CY END DUMPS.

Listed below are the cumulative data on all AML features for this project:

AML FEATURES	ORIGINAL NARRATIVE	ACTUAL COMPLETION
Portals (P) and Vertical Shafts (V.O.)	(1) 15 bcy PUF material	(2) Vertical Openings (1) 12 bcy PUF material (1) 4 bcy PUF material
Dangerous Piles Embankment (DPE)	15,500 bcy	9.33 ac
Pit (Natural Pits)	(not given)	n /a
Dangerous Highwall (HW)	(not given)	828 linear feet (l. ft.)
Access Roads/Haul Roads (AR/HR)	(not given)	10.42 ac
Subsidences	(not given)	5
Berms	300 bcy	400 bcy
Miscellaneous (concrete)	350 bcy	• 350 bcy(concrete) • 30 cinder blocks and 10 bags of 80 lbs. cement
Class A	22,500 bcy	
Wastepile (WP) (copper)	(not given)	

NA-0164

Contractor mobilized to vicinity of this site on October 01,2002 and started preparatory work on pad for 3,500 gallon water storage tank . Trackhoe began Class A excavation, process work and stockpiling at the designated borrow area. Scope of work at this borrow area was done in conjunction with availability of water provided by water trucks.

NA-0164 (cont'd)

This site included 1 open pit and associated waste piles. The waste piles were excavated, consolidated and backfilled into north pit area.

Class A material from within site(approximately 1,000 bcy) and from the designated borrow area(approximately 900 bcy) was used as cover material on the backfilled area.

CHANGE ORDER NO.01 was initiated to address additional Class A needed to complete remedial work for this site. A total of 1,500 bcy, from within site boundary, was used to complete work on January 24,2003.

A total of 11 work days was expended to complete this site

A final verification survey was completed on January 27,2003 with passing results.

Dangerous Piles & Embankment (DPE) (ac)	Pit (P) (ac)	Haul Road (HR)	Class A (bcy)	Miscellaneous
2.01 ac	1.55 ac	(1,584 l ft.) 0.55 ac	(2,500 bcy w/in site) (900 bcy @ 75 loads)	
Total: 2.01 ac	1.55 ac	0.55 ac	3,400 bcy	

*No access road upgrades was necessary for this site.

NA-0158a

This site included 2 waste areas(Waste Area 1 and Waste Area 2) and 1 rimstrip. Excavation work was done via selective handling techniques . Mine waste from both waste areas was excavated ,transported and backfilled at the designated burial area. The rimstrip areas were backfilled in place and mounded slightly as specified. A 200 l.ft. diversion berm was constructed upgradient from the burial area. All disturbed areas were scarified but haul road from the designated borrow area was left intact due to public use.This haul road was used to import Class A cover material ,from the designated borrow area ,to this site using 2 - 12 cubic yard End Dump Trucks.

Reclamation work activities was started on October 10,2002 and completed on October 17,2002.

A final verification survey was completed on January 27,2003 with passing results.

Dangerous Piles & Embankment (DPE) (ac)	Haul Road (HR) (ac)	Class A (bcy)	Drainage (Berm) (l. ft.)	Miscellaneous
0.15 ac	(5,280 l.ft.) 1.82 ac	1,164 bcy (97 loads)	200 l.ft.	
Total: 0.15 ac	1.82 ac	1,164 bcy	200 l. ft.	

NA-0158b

This site is situated in northerly direction from NA-0158a and included 3 Waste Areas, 2 Rimstrips and designated burial areas within site boundaries. Excavation work was done via selective handling techniques . Consolidated waste material was transported and backfilled into designated burial areas. Class A material transported from the designated borrow area was utilized as cover material at 2 feet minimum depth. Contouring and rough grade work was completed at final stages of reclaim work.

Abatement work was started on October 22,2002 and completed on October 24,2002. A final verification survey was done with all readings below the 25 piCo/gr limits.

Dangerous Piles & Embankment (DPE) (ac)	Haul Road (HR) (ac)	Class A (bcy)	Miscellaneous
0.64 ac	(6,336 l.ft.) 2.18 ac	2,208 bcy (184 loads)	
Total: 0.64 ac	2.18 ac	2,208 bcy	

* No access road upgrades was necessary for this site.

NA-0159

This site consisted of a small rimstrip and associated wastepiles. Both wastepiles were excavated and consolidated into rimstrip area and mounded slightly to ensure positive drainage. Class A cover material from within site was used to cap off mine waste. Disturbed work areas was tracked via dozer creating slightly rough surface and access road was scarified at closing stages of work.

Reclamation work was started on October 17,2002 and completed on October 22,2002. A final verification survey was completed on January 08,2003 with passing results.

Dangerous Piles & Embankment (DPE) (ac)	Access Road (AR) (ac)	Class A (bcy)	Miscellaneous
0.17 ac	(1,300 l.ft.) 0.45 ac	250 bcy	
Total: 0.17 ac	0.45 ac	250 bcy	

* No access road upgrades was necessary for this site.

NA-0175 DAM REPAIR

This site involved repair work which entailed excavation and backfill of a breached portion of a dam. All borrow material came from a designated borrow area within site boundaries. This material was subject to soil testing to comply with compaction and water density requirements in all phases of specified work.

A subcontractor ,Western Technologies,Inc.,Flagstaff,Arizona conducted all necessary field tests ensuring backfill material met required specifications of 95% Proctor, plus or minus 2% of optimum moisture content.

At initial stages of dam repair work, all vegetation on east bank of dam and at borrow area was grubbed out ,as part of preparatory work.

A total of 10 earthmoving equipment plus 2 water trucks were used to conduct all phases of work.

Excavation of the breached dam section was completed per specifications including construction of a 60 feet long x 8 feet wide x 4 feet deep keyway. A 3: 1 side slope was maintained from bottom base of keyway to top of dam. Special emphasis was adhered to during backfill work with proper lifts put in place and compaction tests done from start to finish both at keyway and at breached dam . Adequate moisture was applied during processing of all fill material.

Specified work on widening the dam on east embankment was completed per specifications with proper side slopes and required compaction and water density testing. All disturbed areas was contoured to blend in with surrounding terrain.

Specified work at this site was started on October 30,2002 and completed on November 12,2002.

No radiological monitoring activities or a final verification survey was warranted since this is a non-uranium site.

NA-0114d / Area A

This project site consisted of 1 Waste Area, comprising 2 waste piles,1 rimstrip with a designated burial site. Mine waste from both waste piles was excavated and backfilled within the rimstrip feature and mounded accordingly. A borrow cell (approximately 100 bcy) was excavated below mesa area. This cover material was transported,mounded and used as cover material over backfilled mine waste via Front End Loader.

Remediation work was started on November 19,2002 and completed on November 20,2002. A final verification survey was completed on January 09,2003 with all readings under the 25 pCi/gm limits.

Dangerous Piles & Embankment (DPE) (ac)	Haul Road (HR) (ac)	Class A (bcy)	Miscellaneous
0.80 ac	(370 l.ft.) 0.13 ac	100 bcy	
Total: 0.80 ac	0.13 ac	100 bcy	

NA-0114d / AREA B

This site consisted of 2 Waste Areas, 1 rimstrip, and 1 vertical opening (V.O.). Mine waste was excavated from rim edge at WP-1 area and transported to Rimstrip # 2 for burial. Waste Area 2 was excavated and backfilled into burial area at Rimstrip # 2.

A borrow cell (300 bcy) was excavated on north perimeter within site boundaries and Class A material was transported to burial area and used as final cover. All the haul roads and access roads were scarified at final stages of abatement work. Work on this site was started on November 18,2002 and completed on November 19,2002.

The final verification survey was completed with passing results on January 09,2003.

Dangerous Piles & Embankment (DPE)	Haul Road (HR)	Class A	Vertical Opening (V.O.)
0.12 ac	0.21 ac	300 bcy	1
Total: 0.12 ac	0.21 ac	300 bcy	1

NA-0113

This project site consisted of four (4) rimstrip areas, an open pit and associated wastepiles. Excavation and transport of said mine waste was completed at all Waste Areas and backfilled into specified rimstrip areas. Selective handling procedures was performed during all Class C work activities. Contour work was done to blend in shallow mounded areas with natural terrain and sloped accordingly. A borrow area was excavated at southwest perimeter within site boundaries and used as Class A cover. Drainage areas were not blocked and all access roads were scarified.

Reclamation work was started on December 04,2002 and completed on December 11,2002.

A Final Verification survey was completed for this site on January 09,2003.

Dangerous Piles & Embankment (DPE) (ac)	Pit (P) (ac)	Access Road (AR) (ac)	Class A	Miscellaneous
2.12 ac	0.03 ac	0.31 ac	1,100 bcy	
Total: 2.12 ac	0.03 ac	0.31 ac	1,100 bcy	

NA-0116

This site consisted of four (4) cluster areas that contained rimstrips with associated wastepiles. Wastepile # 1 ,designated as Class A, was used as cover material during latter stages of work in Area # 1. Abatement work was started at Area # 1 with access road upgrading and excavation/stockpiling of Wastepile # 1. Backfilling of rimstrips and highwall area was completed using Wastepile # 1 was cover material as specified.

Waste Area B abatement work included excavation/consolidation of Wastepile # 3 and transport to rimstrip for burial. Armoring of toe at Rimstrip # 3 was completed using cover material from designated borrow area at west perimeter of site. Highwall feature associated with Rimstrip # 3 was eliminated and contoured with natural topography.

Waste Area C abatement work included excavation and backfilling of Rimstrip # 4 as required. Class A material from the designated borrow area was utilized as cover.

At Waste Area D, excavation work was completed ,per specifications, except for a small area at west perimeter of this site.

On November 26,2002, explosive material was uncovered at this location. A site assessment was completed by NN AMLR and by SSCC and disposal of said explosives was completed by a sub-contractor. Per a mutual agreement, scope of work at this location for reclamation work was put on hold until at a later date.

All access roads into the four (4) reclaimed areas were eliminated by scarification.

A final verification survey was completed, excluding the aforementioned location ,was completed with all recorded readings under the acceptable 25 pCi/gm limits.

Dangerous Piles & Embankment (DPE) (ac)	Haul/Access Road (ac)	Class A (bcy)	Dangerous Highwall (HW) (l. ft.)	Miscellaneous
2.15 ac	0.24 ac	1,250 bcy	325 l. ft.	
Total: 2.15 ac	0.24 ac	1,250 bcy	325 l.ft.	

NA-0141 COALMINE MESA

This site consisted of five (5) subsidence areas that involved excavation , backfilling and compaction work. Borrow material from within site boundaries was utilized as cover material and as fill material.

All five (5) subsidences areas were excavated to specified depths and side sloped at a 2:1 ratio. Adequate moisture was applied on all stockpiled material.

Field assessments were made on each excavated subsidences by both NN AML and by SSCC before backfilling procedures was completed as required.

Specified work was started on December 12,2002 and completed on December 18,2002.

NA-0141 COALMINE MESA (cont'd)

No uranium radiometric work activities was warranted on this site. Contractor started mobilizing to Coppermine 2 sites on December 18,2002.

Subsidence (ac)	Class A (bcy)	Miscellaneous
0.22 ac	800 bcy	
Total: 0.22 ac	800 bcy	

* No access road upgrades necessary for this site.

NA-0259 Open Portal Site

This project site consisted of one(1) prospect and associated wastepiles.

Due to difficult accessibility to portal site more time was spent on accessing the shortest possible route to site than was spent on actual abatement work.

Preparation work involving manual transport of all necessary material, including **12 cubic yards** of polyurethane foam material (PUF), lumber and other relevant material was completed the first two days.

Specified PUF closure work and rock backfill to disguise opening was completed on December 20,2002. Additional backfill work ,mandated per AML inspection , was completed on January 21,2003.

NA-0252 (Copper site)

This project site consisted of two(2) rimstrips, associated copper wastepiles and concrete structures. Access road upgrades were addressed the first day as required. Rimstrip # 2 was excavated and dismantling/breaking up, into two foot pieces, of concrete structures was completed. All concrete pieces were backfilled at Rimstrip # 2 area and mounded accordingly. Excavation work of Rimstrip # 1 and backfilling of Waste Area # 1 was completed. Positive drainage requirements was adhered to on mounded areas with no retention areas.

Reclamation work was started on January 06,2002 and completed on January 10,2003.

No radiometric work was done at this site,this being a abandoned copper site.

Wastepile (ac)	Access/Haul Road (ac)	Class A	Miscellaneous
0.31 ac	(842 l ft.) 0.29 ac	400 bcy	Concrete: 350 bcy
Total: 0.31 ac	0.29 ac	400 bcy	350 bcy

NA-0255 (Copper site)

This project site consisted of two (2) prospects, one(1) rimstrip and associated copper wastepiles. Upgrades on access road was completed the first day as necessary. Interior of both prospects were backfilled using associated waste material (approximately 80 bcy) and exterior were backfilled/sloped using rocky material (approximately 30 bcy) to ensure positive drainage. Access road incoming from south x southeast direction was scarified using dozer at latter stages of work activities. No radiometric work activities was necessary for this site

Dangerous Highwall (HW) (l. ft.)	Access Road (ac)	Class A	Wastepile (bcy)
75 l.ft.	(300 l.ft.) 0.10 ac	30 bcy	80 bcy
Total: 75 l.ft.	0.10 ac	30 bcy	80 bcy

NA-0256 (Copper site)

This project site consisted of one(1) prospect and associated copper wastepiles. Associated minewaste(approx. 20 bcy) was trammed into opening using Trackhoe. The scope of work was changed , per mutual agreement, from straight backfilling to bulkheading prospect opening using cinderblock and reinforced cement construction. A total of **30 cinderblocks** and **10- 80 lbs. bags of cement/mortar** was used to seal opening. Steel rebars were used to stabilize and strengthen base and cement wall structure. Exterior of opening was backfilled using rocky material(approximately 25 bcy) and sloped against natural sandstone to disguise opening.

Work was started on January 15,2003 and completed on January 17,2003.

No radiological monitoring was warranted for this site.

FINAL INSPECTION

A Final Inspection was completed on all reclaimed project sites, both at **CAMERON 6** and **COPPERMINE 2** , on January 29,2003.

Further discussions need to be done for site NA-0116 / Area D because safety is of a great concern. Options have been discussed and a meeting has been set to discuss this issue.

There was no occurrence of any reportable injuries nor time-lost accidents on this project.

Overall, the reclaimed project sites was completed within the scheduled time frame and the final inspection results was satisfactory.

TO: Ray Tsingine Program Manage
Tuba City AML Office

From: Guy Horsen Senior Environmental
Tuba City AML Office

Date: January-2003

Subject: Western Navajo Plateau AML Reclamation Project Close out Reports.
Contract NO. C22343

This is my report on the project site construction activities during the absent of Project Manager's as delegated the owner's representative. The following are statistic on each site as Silver State Construction Company, Inc reclaimed them

Contract personnel included; (1) Project superintendent-Timothy James, (1) Foreman- Vernon Howard- (4) Heavy Equipment Operators-Rudy Horseherder, Henry Shorthair, Leonard Yazzie, and Loretta Blackhorse (2) laborers Kee Nez and Tony Worker.

Equipments included (1) D6 Dozer, (1) 320 CL Track Hoe, (1) G 990 Loader, (1) 4000 gallon Water Truck, (1) Tool shed Trailer, (1) Access Trailer and (2) 500 gallon Water Trucks.

NA-0114a Area A

Cameron Project 6

Dangerous high wall	Acres of DPE	Acres of Haul-Road	Acres of pit/rimstrip	Drainage	Vertical Opening
0	.06 AC	0.42 AC	.010 AC	0	0

November 12, 2002 the contractor mobilized to east side of Moenkopi wash and used this location as their staging area. Due to recent heavy rains access road crossing the wash was impassable passable by regular vehicles. The Flash flood caused accumulation of two feet of sediments on either side of banks, 100 feet out from wash.

Extensive road upgrades was done in this area, (contrary to restrictions noted in technical specifications manual).

The 4000gal. Water Truck and Access Trailer, were left at the staging area due to their sizes. The tool- shed trailer was used for access at all sites NA-0114a thru NA-0114d Series and at Na-0116.

All waste piles were scanned and marked using visible paint prior to any reclamation work. The track Hoe removed all the waste below the rim edges and stockpiled for burial on top. Water was used for dust suppression and to keep materials moist. This waste pile was transported via loader to the burial area / rimstrip and covered using Dozer. Specified compaction and mound work was